

**A STUDY ON THE PERMANENT TRACKWAYS MADE BY THE ANT  
MESSOR BARBARUS, L., BARBARUS (HYM. FORMICIDAE) IN  
ALGERIA.**

By W. PICKLES, F.R.E.S.

Plates I, II.

INTRODUCTION.

Whilst studying the ecology of ants on a hillside at Souk Ahras in Eastern Algeria during 1943 it was noticed that ants (*Messor barbarus*, L., *barbarus*) leaving the nests to go to the "harvesting areas" to collect the inflorescence of grasses, etc., actually wore away the grass near the nest and made a permanent trackway in one or more directions as the case might be. These are mentioned by Forel (1928).

At one particular spot on the hillside, where these observations were made, it was noticed that quite a maze of permanent trackways interlocking with each other, etc., had been formed during the Autumn months. Forel (1928) mentions that often these nests of the harvesting ants are of considerable area in extent and that the mouths may be several feet or yards away from each other. It is not, therefore, claimed that the mouth-openings marked A to F (Fig. 1) are those of different nests and that the trackways are from different nests; but that they represent the points of origin of different trackways which had their own particular ants running along them having their own individual scents (see later).

I wish to thank Mr S. Smith for the loan of his camera to take the photograph.

DESCRIPTION OF THE TRACKWAY "MAZE."

This particular part of the hillside on which the "maze" of permanent trackways was situated measured 50 ft. by 30 ft. and was a rectangular area. To the north-east, south and west of this small area there were rocks with very little vegetation on them and the north-eastern side was bounded by a path (made by Arabs) running approximately north-west to south-east. Two of the nests were situated in the north-westerly part of the area, whilst the other four were practically arranged in a straight line along the south-easterly border. Between nests A and B and the other four nests C, D, E and F there was an expanse of grass which the ants from all these nests used as their harvesting area. Most of the permanent trackways led to it. On 12th July 1943 these permanent trackways were mapped out; they were in common use by the ants from these mouth-openings at the time, although they were not all used by the ants at the same time. These trackways, which are illustrated in Fig. 1 and which were clearly visible in the grass and were worn down to the ground (i.e., soil) level, were the permanent trackways only and those along which the ants would go towards their foraging areas before branching out to search for seeds when these latter areas were neared. It might appear from the diagram that the path made by the Arabs and running along the north-eastern part of the area acted as a boundary to the foraging activity but this was not the case and many a time ants were observed to pass

over this human path and make processions many yards beyond this path, but they were not permanent trackways.

The number of trackways varied with the nest (or mouth-opening) but only three of them had no branches; one of these was from nest E and the other two were from nest F, all the rest having a varying number of branches. The longest of these trackways was the one running in a northern and westerly direction from nest-mouth F; this was 57 feet long and stretched from its point of origin at F to near nest-mouth A at X. Trackways from nests C, D and E crossed this track at various points along its course and in the neighbourhood of F there was quite a "maze" of tracks running in different directions. Processions of ants along any one of these tracks kept rigidly to it and did not go off along a different track because that particular track crossed another one.

In order to show more clearly how these permanent trackways show up in the grass a photograph of the tracks leading from a nest of *M. b. barbarus* was taken. This is shown in the accompanying photograph (Fig. 2). This nest was situated some 30 yards or so to the north-west of the area described above. This particular nest was situated amongst the roots of a small spinous shrub about 2 ft. to 2 ft. 6 ins. in height. The trackways led chiefly in an easterly direction, the pathway in the photograph being a continuation of the pathway marked on Fig. 1. In this photograph three ant-trackways are plainly to be seen (marked A, B and C) as lighter coloured lines running from the nest towards the human pathway. Track C divided at the point C into two branches marked C1 and C2.

#### REFERENCE.

(1928) Forel, A. *The Social World of the Ants*. London.

---

## CHANGES IN THE DISTRIBUTION AND ABUNDANCE OF THE LEPIDOPTERA.

By BRYAN P. BEIRNE, Ph.D., M.R.I.A., F.R.E.S.

---

One of the neglected aspects of the study of the Lepidoptera is the causes of changes in the distribution and abundance. Many such changes can be attributed, either directly or indirectly, to the weather or to human activities. Some other causes, all of which require further investigation, are discussed below.

Little is known of the causes of great outbreaks of larvae. While every species fluctuates in abundance from year to year, there are some whose larvae occur occasionally or regularly in vast numbers. There is one significant fact in connection with the majority of these species: their habits are such that there is normally a tendency for heavy concentrations of larvae to arise in limited areas. With some the females are incapable of flight so that each normally must lay all its eggs in a limited area on a single tree, examples being *Orgyia antiqua*, *Operophtera brumata*, *O. fagata*, *Phigalia pilosaria* (*pedaria*), *Erannis defoli-*